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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,888	12/20/2000	Andrew Beals	CISCP668	8236
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RITTER, LANG & KAPLAN P.O. BOX 2448 SARATOGA, CA 95070			SEFCHECK, GREGORY B	
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DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/742,888	Applicant(s) BEALS, ANDREW	
	Examiner Gregory B Sefcheck	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-15 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-15 and 17-24 is/are rejected.
- 7) ☒ Claim(s) 5, 6, and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Request for Continued Examination filed 1/25/2005 is acknowledged.
- Claims 1, 3, 5, 7, 8, 10, 12, 14, 15, 17, 19, and 21-23 have been amended.
- Claims 2, 9, and 16 have been cancelled.
- Claim 24 has been added.
- Claims 1, 3-8, 10-15, and 17-24 are pending.

Claim Objections

1. Claims 5, 6, and 19 are objected to because of the following informalities:
 - In the Amendment filed 1/25/2005, claim 19 has been amended. However, the claim listing identifies claim 19 as "Original".
 - Claim 5 recites the limitation "said transmission by said newly contactable node" on line 11 of the claim. There is insufficient antecedent basis for this limitation in the claim. No "transmission" or intent to transmit by a newly contactable node is introduced prior to this line of the claim.
 - Also, regarding claim 5, the method appears to be missing steps. After receiving a registration response from the master node at a selected node, there is not an explicit step for forwarding the registration response onto the newly contactable node, as shown in similar claims 12 and 19. Claim 6 depends from claim 5.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, 7, 8, 10, 11, 14, 15, 17, 18, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gehring et al. (US 20040028071A1), hereafter Gehring, in view of Bandeira et al. (US 20020072329A1), hereafter Bandeira.

- In regards to Claims 1, 4, 8, 11, 15, 18, and 22,

Gehring discloses an apparatus and software architecture for executing a method of controlling a shared medium in a wireless network (Title; Abstract; Pg. 2, paragraph 16; claim 1,15,22 – apparatus and method executed through a stored computer program for coordinating shared medium access in wireless network).

Referring to Fig. 1, Gehring discloses an apparatus 12 operating as a master node of the wireless network 10 (claim 8 – apparatus for operating master node of wireless network). Antenna 18 allows communication of information via a wireless medium (claim 8 – wireless interface for communicating information via a wireless medium).

Gehring shows the master node manages links between itself and all registered slave nodes (Pg. 2, paragraph 17; claim 1,8,15,22 – master

node/processor/code/means for recording a contact path to a newly admitted node;
claim 4,11,18 – recording of contact path comprises registering a link usable to
communicate to the new node to a routing client).

The master node generates a schedule for transmissions from all registered
slave nodes within a TDMA frame. Each slave node is allocated a unique time slot for
transmission, thereby avoiding collisions (Pg. 3, paragraph 24; claim 1,8,15,22 –
means/code for generating a schedule for node transmission precluding collisions
between simultaneous transmission by any pair of nodes; claim 1,8,15 – schedule
comprises time slots allocated to nodes that can be directly contacted by the master
node).

Gehring further shows that the length of the time slots of the generated schedule
may be dynamically reallocated/reassigned to optimize the bandwidth capabilities of the
medium by providing a wider data slot to slave devices which can utilize a wider
bandwidth or providing a narrower data slot to slave devices with more limited
bandwidth utilizations (Pg. 6, paragraph 64; claim 1,8,15,22 – schedule including time
slots that are expandable).

A control section within each frame distributes the schedule to all the registered
slave nodes (Pg. 6, paragraphs 62 and 68; claim 1,8,15,22 – means/code for
distributing the schedule to nodes controlled by master node).

Gehring does not explicitly disclose expanding a time slot to accommodate a new
node. Gehring also does not explicitly disclose a transmission schedule that precludes

collisions between simultaneous transmission by any pair of nodes that do not hear each other's transmissions.

Bandeira discloses a scalable wireless network topology for providing access to distributed nodes (Title; Abstract). Referring to Figs. 2 and 4, Bandeira shows that time slots of varying length are used to provide access to a shared medium, with a new node incorporated into the network if within radio frequency range of any existing node in the network, where the existing node's time slot may be expanded to incorporate the transmission of the new node (Abstract; Pg. 5, paragraphs 59-61; claim 1,8,15,22 - expanding a time slot to accommodate a new node). The time slot access shown by Bandeira precludes collisions, including simultaneous transmission by any pair of nodes that do not hear each other's transmissions (Fig. 4; claim 1,8,15,22 – means/code for generating a schedule for node transmission precluding collisions between simultaneous transmission by any pair of nodes that do not hear each other).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus, method and software of Gehring by enabling the expansion of a time slot within the medium access schedule to accommodate a new node, as taught by Bandeira. Such a modification would enable the network to function properly even while the topology of nodes requiring access to the shared medium continuously changes. Furthermore, the use of a schedule in Gehring that precludes collisions, even of nodes that do not hear each other, would enable the network to accommodate nodes at greater distances from the master node such that new nodes

would only be required to be within range of an existing slave node, as shown by
Bandeira.

- In regards to Claims 3, 7, 10, 14, 17, and 21,

Gehring discloses an apparatus and software architecture for executing a method of controlling a shared medium in a wireless network that covers similar limitations of independent claims 1, 8, 15, and 22.

Gehring does not show the time slots expanding to accommodate transmission by a first node that can be directly contacted by the master node and a second node that cannot be directly contacted by the master node.

Bandeira discloses a scalable wireless network topology for providing access to distributed nodes (Abstract). Referring to Figs. 2 and 4, Bandeira discloses a transmission slot 2 which expands to include transmissions from node 2, which is directly contactable by master node 1, and transmissions from nodes 5 and 9, which are not directly contactable by master node 1 (Pg. 5, paragraphs 59-61; claim 3,10,17 – at least one time slot includes a subslot allocated for transmission by a node that cannot be directly contacted by the master; claim 7,14,21 – time slot expands to accommodate transmission from a first node directly contactable by master node and transmission from a second node directly contactable from first node but not master node).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the apparatus and software-executed method of Gehring by enabling expansion of the transmission time slots for transmissions from a node that is directly

contactable by the master node and a node that is not directly contactable by the master node. This adaptation would enable nodes not directly contactable by the master node to attach to the network and transmit/receive data communications, thereby extending the coverage area of the network.

4. Claims 5, 6, 12, 13, 19, 20, and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Anvekar et al. (US006377805B1), hereafter Anvekar, in view of Larsen (US006785510B2) and further in view of Bandeira.

- In regards to Claims 5, 6, 12, 13, 19, 20, and 23,

Anvekar discloses an apparatus and method executed by software on a processor for controlling access to a shared medium of a wireless network through a selected node of the network (Fig. 2-6; claim 5 – method for coordinating access to a shared medium; claim 12,19 – apparatus executing a computer program for operating a selected node of wireless network; claim 12 – interface receives transmission from a new node comprising registration information)

Referring to Fig. 3 and 4, Anvekar discloses a slave unit 206 receiving a page to establish a link from a newly contactable node 205, which is then forwarded to the master node for communicating the new extended link to the network server (claim 5,12,19,23 – receiving registration information from a new node; forwarding registration information to master node).

Node 205 is then provided the ability to communicate data using appropriate access information in a time-division-multiplexed manner through slave node 206 (Col. 4, lines 8-53; Col. 5, lines 20-29; claim 5,12,19,23 – means/code for receiving a time allocation for transmission by new node at selected node from master node; claim 5,12,19,23 – means/code for transmitting time allocation to new node; claim 6,13,20 – selected node receiving a transmission from new node during a timeslot of the time allocation and forwarding the transmission to the master node).

Anvekar does not explicitly disclose forwarding a registration response from the master node to the new node or forwarding an acknowledgement to the registration response from the new node to the master node.

Larsen discloses routing in a multi-station network in which wireless access is coordinated for a plurality of nodes (Title; Fig. 2). Referring to Figs. 2, 4a-b and 6a-b, Larsen discloses how extended data service coverage may be provided, where nodes MSb, MSc and base station NODEB receive and forward a transmission from MSa towards RNC, where each forwarded transmission is acknowledged by the forwarding node (Col. 10, lines 23-51; claim 5,12,19,23 – response from master node to new node). RNC acknowledges the transmission received from MSa through nodes MSb, MSc, and NODEB and assigns a channel allocation, which is relayed through NODEB, MSc, and MSb to MSa. Each node along the relay acknowledges the assignment initiated by the RNC (Col. 10, lines 51-59; claims 5,12,19,23 – acknowledgement from new node to master node).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and method executed by software on a processor for controlling access to a shared medium of a wireless network of Anvekar by acknowledging transmissions that are relayed between nodes, as shown by Larsen. Such responses and acknowledgements are well known in the art for verifying proper transmission and reception of data and are particularly important when transmissions are required to be relayed over one or more intermediate nodes, as the chances of data corruption/loss are increased.

Neither Anvekar nor Larsen shows the time allocation for the new node created by expanding a transmission slot for the selected forwarding node between the master node and new node.

Bandeira discloses a scalable wireless network topology for providing access to distributed nodes (Title; Abstract). Referring to Figs. 2 and 4, Bandeira discloses a transmission slot 2 which expands to include transmissions from node 2, which is directly contactable by master node 1, and transmissions from nodes 5 and 9, which are not directly contactable by master node 1 (Pg. 5, paragraphs 59-61; claim 5,12,19,23 – time allocation for new node created by expanding transmission slot for node intermediate of master and new nodes).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and method executed by software on a processor for controlling access to a shared medium of a wireless network of Anvekar by expanding a

transmission slot of a node in direct communication with a master node to include transmission from a new node not in direct communication with the master node, thereby extending the coverage area of the network and enabling communication in areas otherwise not covered by the master node of the network.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anvekar in view of Larsen further in view of Bandeira as applied to claim 5 above, and further in view of Toth et al. (US005708655A), hereafter Toth.

- In regards to Claim 24,

Anvekar discloses that interaction between slave and master units may include the MAC layer address of a slave unit (Col. 6, lines 24-34; claim 24 – registration information includes a MAC layer address).

Neither Anvekar, Larsen, nor Bandeira explicitly discloses a registration response that includes an IP address.

Toth discloses a method and apparatus for addressing a wireless station with a dynamically-assigned address. Referring to Fig. 2, Toth shows a sequence in which wireless host 52 is assigned an IP address in response to a registration request (Col. 7, lines 33-46; claim 24 – registration response includes an IP address).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and method executed by software on a processor for controlling access to a shared medium of a wireless network of Anvekar by including an

IP address in a registration response to a new node, thereby providing an identification address recognizable to other wireless stations that enables communication of data with the other wireless stations in the network.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 8, 15, and 22 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's arguments filed 1/25/2005 regarding claims 5, 7, 12, 14, 19, 21, and 23 have been fully considered but they are not persuasive.

- Regarding Claims 5, 12, 19, and 23 in the Remarks on pg. 13 of the Amendment, the Applicant contends that there is no teaching or suggestion in Anvekar of any communicating occurring between a newly contactable node (205) and the master node (203) through a selected wireless node 206.
- The Examiner respectfully disagrees. On lines 34-37 and 49-53 of column 4, Anvekar discloses that node 205 proceeds with data communication to the NS 201 through slave unit 206. Referring to Fig. 2, such communications from unit 205 through 206 would have to be relayed through unit 203 to NS 201.

- Regarding claims 7, 14, and 21 in the Remarks on pg. 14 of the Amendment, the Applicant contends that Bandeira does not teach transmission of data to a master node from a repeater node and transmission of data from a node that cannot be directly reached by the master node is also transmitting occurs within the same allocation time slot.
- The Examiner respectfully disagrees. Referring to Fig. 2, Bandeira discloses a scheme in which nodes 5 and 9, which cannot be directly reached by the master node 1, transmit their data to node 2, which then communicates the data received from nodes 5 and 9 as well as its own data within its time slot allocation (2). It is the opinion of the Examiner that this disclosure of Bandeira meets the limitation of claims 7, 14, and 21 in which a time slot is "allocated for transmission from a first node that can be directly contacted by said master node to said master node and wherein generating said transmission schedule includes expanding the first time slot to accommodate transmission from a second node that cannot be directly contacted by said master node but can be directly contacted by said first node." Because the time slots of Bandeira vary in length dependent on the amount of data required to transmit (Pg. 5, paragraphs 54 and 56), it is the opinion of the Examiner that the time slots of Bandeira are "expanded" to accommodate the data transmissions collected from nodes 5 and 9.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Garrett et al. (US 20020023174A1) discloses service selection in a shared access network using dynamic host configuration protocol
- Dougherty et al. (US006831902B1) discloses routing information packets in a distributed network
- Dillon et al. (US006628953B1) discloses a method of forwarding channel assignments for one or more traffic channels
- Kay et al. (US005633873A) discloses a combined fixed and mobile radio communication system and method


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2662

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
4-6-2005



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